

REMARKS

This is in response to the non-final Official Action currently outstanding with regard to the above-identified application.

Claims 1-23 were pending at the time of the issuance of the currently outstanding non-final Official Action in the above-identified application. Claims 16-23 have been withdrawn from further consideration in the above-identified application in view of Applicant's response to a previous election/restriction requirement. By the foregoing Amendment, Applicant respectfully requests that Claims 5, 7 and 9 be amended so as to correct minor typographical errors therein. No further claims have been cancelled, added or withdrawn by the foregoing Amendment. Accordingly, upon the entry of the foregoing Amendment, Applicants respectfully submit that Claims 1-15 as hereinabove amended will constitute the claims under active prosecution in this application, and that those claims will be in condition for allowance.

The Claims of this application are reproduced above with appropriate status identifiers and showing the changes being proposed by the Applicant as required by the Rules.

More particularly, in the currently outstanding non-final Official Action:

1. Not re-acknowledged Applicants' claim for foreign priority under 35 USC §119 (a)-(d) or (f), and reconfirmed the receipt by the United States Patent and Trademark Office of the required copies of the priority documents for this application. – **Applicant respectfully notes that the Examiner provided it with such acknowledgement and confirmation in the Official Action dated 29 May 2008.**

2. Not reconfirmed that the drawings as filed with this application on 7 February 2006 have been accepted. - **Applicant respectfully notes that the Examiner provided it with such acknowledgement in the Official Action dated 29 May 2008.**
3. Provided Applicant with a Notice of references cited that lists references cited by the Examiner and also provided the Applicants with an English language translation of the Sato reference.
4. Acknowledged his receipt and consideration of Applicant's Information Disclosure Statement as filed on 26 March 2008 by providing Applicant with copies of the Forms PTO/SB/08a/b that accompanied that Statement duly electronically signed, dated and initialed by the Examiner in confirmation of that consideration. – **Similar consideration of the art provided with Applicants' Information Disclosure Statement of 19 February 2009 was provided by the Examiner with the Advisory Action dated 30 April 2009.**
5. Rejected Claims 1-10, 12 and 15 as being unpatentable under 35 USC 103(a) over Sato (JP 56098172) in view of Peeters et al (US Patent No. 6,340,216) and Lin et al (US Patent No. 6,238,393).
6. Rejected Claims 11, 13 and 14 under 35 USC 103(a) as being unpatentable over Tsumotu (presumably meaning Sato) (JP 56098172) in view of Peeters and Lin et al further in view of Ohno et al (US Patent No. 6,096,468).

Further comment regarding items 1-4 above is not deemed to be required in these Remarks.

With respect to items 5 and 6 above, however, Applicants respectfully submit the foregoing clarifying Amendment and the following Remarks in rebuttal of the Examiner's current position, particularly as it applies to the Sato reference. In particular, Applicants respectfully call the Examiner's attention to the fact that the claims of this application previously have been amended so as to positively recite that the present invention is directed to positively and negatively charged fluidic droplets that are alternately landed on the discharge target. Furthermore, Applicants respectfully submit that the Examiner has misapprehended the teachings of the references now relied upon in this regard and that once the teachings of those references are correctly understood by the Examiner, he will agree that the present application is in condition for allowance *vis a vis* the art currently of record in the present proceeding.

In particular, Applicants previously submitted a copy of JP-56-98172 along with an Information Disclosure Statement and the Examiner now has made that document his principal reference and provided an English language translation thereof for the record. In this regard, Applicants previously drew the Examiner's attention to the fact that that document discloses an electrostatic suction type inkjet which charges droplets with a polarity opposite to the voltage applied to the electrode 2 thereof. Thus, Applicants previously made of record their belief that Fig. 2 and Fig. 3 of that document as well as the descriptions relative thereto at least suggest that minus charged droplets and plus charged droplets are discharged and merged together during their flight toward the target. Hence, the above cited document was previously asserted to not teach, disclose or suggest directly charging a fluid, but rather to disclose charging the discharged droplets in a non-contacting manner. Moreover, it was previously respectfully submitted that the latter document does not to teach "positively and negatively charged droplets that are alternately discharged and alternately landed on the discharge target as in the present invention.

Nevertheless, the Examiner now has seen fit to make the Sato reference (JP 56098172) his primary reference against the claims of this application. Applicants respectfully disagree. and therefore, respectfully traverses the reasoning stated by the Examiner in support of his currently outstanding non-final rejections for the following reasons.

The Examiner's characterization of the Sato reference appears to be best summarized at the paragraph bridging pages 3 and 4 of the currently outstanding Official Action wherein the Examiner states that:

Sato teaches the drive voltage supply means outputting as the drive voltage, a bipolar pulse voltage which alternates between positive and negative such the positively charged fluid **droplets** and negatively charged fluid **droplets** are alternately discharged in accordance with a polarity of the bipolar pulse voltage applied as the drive voltage **and alternately landed on the discharge target** (Sato: Abstract: disclosing discharge of selectively [alternately] charged positive and negative drops of ink [positively charged fluid droplets and negatively charged fluid droplets] alternately discharged and coordinated with a polarity of bipolar pulse as the drive voltage; see also Fig. 2; showing print signal generator [drive voltage supply means] outputting an alternating charge deflection type printing electric drive signal [bipolar pulse voltage], with positively and negatively charged ink drops [such that a positively charged fluid and a negatively charged fluid are alternatively discharged in accordance with a polarity of the bipolar pulse voltage applied as the drive voltage] see also Sato JP 56098172 translation)

In other words, the Examiner appears to reject the present application based mainly upon the proposition that Sato discloses a charging signal generator means for applying an alternating bipolar electrical charge signal to the charging electrode for charging the droplets. Applicants respectfully submit, however, that the Examiner's reading of the Sato reference fails to take into account the actual description of the operation of the Sato device (see pages 4-6 of the English language translation provided by the Examiner), and the fact that the Sato reference clearly does not define the word "selectively" as meaning "alternately", at least in all cases (See, Sato, Figs. 3A and 3B).

Thus, it will be noted that the Sato reference discloses the sequential discharge of droplets from the nozzle, which droplets are selectively charged either positively, negatively or neutrally. The positive charge and the negative charge being controlled such that one is smaller than the other whereby adjacent positively charged droplets and negatively charged droplets combine with one another prior to being deflected by a deflecting field either upwardly or downwardly as indicated in Figs. 3A and 3B of Sato. The neutrally charged droplets, on the other hand, are not deflected and fly straight across the gap between the nozzle and the paper so as to be trapped by the gutter 10 prior to reaching the paper. Also, Sato contemplates single charged droplets such as 6 shown in Fig. 3B being deflected one way while combined droplets such as 1 and 2 are deflected the other way.

Accordingly, it will be understood that the Sato reference discloses an electrostatic suction type inkjet (see Fig. 2), in which uncharged droplets are discharged from the nozzle 1a of the inkjet, those droplets are selectively charged, and the so charged droplets (or combinations thereof) are deflected by the deflection electrodes 4a and 4b and then are landed on the paper. As can be seen from Sato's Fig. 3A and 3B there are positively charged droplets (6, 8) and negatively charged droplets (1+2, 10+11) deposited on the paper while the neutrally charged droplets are disposed of in the gutter. **However, the Sato reference is respectfully submitted to fail to teach the feature of the present invention that "positively and negatively charged droplets are alternately discharged and alternately landed on the discharge target".**

Hence, it will be understood that the present invention aims to restrain the charge-up of the insulated substrate (i.e., the target substrate). To achieve this object, positively and negatively charged droplets are alternately discharged and alternately landed on the discharge target as hereinabove specifically claimed. In this regard note is respectfully made of the fact that the target substrate will be charged-up and unstable droplet landing will occur if droplets of the same polarity as the discharge target are attempted to be discharged and landed.

In contrast to the present invention (as has been discussed in more detail above) Sato teaches positively charged droplets (6, 8) each of which is equivalent to one droplet from nozzle 1 in size, but negatively charged droplet (1/10) and positively charged droplets (2/11) that attract one another and combine into a single droplet having twice the size of a single discharged droplet from the nozzle 1 (i.e., droplets 1+2 and 10+11). This is the case because the object of the Sato reference is to discharge and land droplets of two different sizes on the recording paper using a single nozzle. Moreover, as indicated above, droplets 3, 4, 5, 7 and 9 fly straight without deflection and are captured by the gutter 10. Hence, the two different sizes of droplets in Sato can be used for example in the grayscale printing of an image which is an entirely different concept from that of the present invention that restrains the charge-up of the target substrate.

It will be understood, therefore, that in the Sato device which of the negatively charged droplets and the positively charged droplets is to be discharged when is determined by the content of the printed image. The Sato reference simply does not teach, disclose or suggest alternating discharging and alternating landing positively and negatively charged droplets on the discharge target. In fact, during the printing of a bold line, the Sato device discharges continuously negatively charged droplets and lands them on the recording paper, which clearly will lead to the charge-up of the target substrate.

Furthermore, Applicants respectfully submit that the Peeters and Lin references also fail to teach, disclose or suggest the feature of the present invention that “positively and negatively charged droplets are alternately discharged and alternately landed on the discharge target”.

For these reasons, Applicant respectfully submits that the so-called alternating charge signal of the Sato reference is not a signal that alternates the charge on each successively discharged droplet from the nozzle between the positive and the negative.


Rather, in Sato, the alternating signals vary between a set positive and negative electrical polarities and no electrical polarity. Therefore, the Sato selective charging cannot correctly be referred to as alternating bipolar signal charging in the common sense of the latter terminology. Therefore, unlike the present invention as now specifically claimed, the present invention creates positively and negatively charged droplets alternately that are alternately landed on the discharge target. The Sato reference on the other hand selectively charges the generated droplets (either positively, negatively or neutrally) and lands only charged droplets or combined droplet pairs on the target while disposing of the neutrally charged droplets. Applicant respectfully submits that the latter teachings do not teach, disclose or suggest the former.

Consequently, Applicant respectfully submits that upon the entry of the foregoing Amendment, the above-identified application will be in condition for allowance. Accordingly, entry of the foregoing Amendment, reconsideration, and a decision allowing the above-identified application in response to this submission are respectfully requested.

Finally, Applicant believes that additional fees beyond those submitted herewith are not required in connection with the consideration of this response to the currently outstanding Official Action. However, if for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, you are hereby authorized and requested to charge and/or credit Deposit Account No. 04-1105, as necessary, for the correct payment of all fees which may be due in connection with the filing and consideration of this communication.

Respectfully submitted,

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SIGNATURE OF PRACTITIONER

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